

January 09, 2020



U.S. Department
of Transportation

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

**Pipeline and Hazardous
Materials Safety Administration**

DOT-SP 20896

EXPIRATION DATE: 2021-05-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Applied Energy Systems
Malvern, PA
2. PURPOSE AND LIMITATION:
 - a. This special permit authorizes the transportation in commerce of Division 4.2 solids in non-specification packaging. This special permit provides no relief from the Hazardous Materials Regulations (HMR), the International Civil Aviation Organization's Technical Instruction for the Safe Transport of Dangerous Goods by Air (ICAO TI), or the International Maritime Dangerous Goods Code (IMDG Code) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
 - b. The safety analyses performed in the development of this special permit only considered the hazards and risks associated with the transportation in commerce.
 - c. This special permit serves as an "exemption" as defined in 1;3.1.1 of the ICAO TI and Section 7.9.1 of the IMDG Code (see IMO MSC/Circ. 1075-Granting Exemptions from the Provisions of the IMDG Code), and as a "Competent Authority Approval" as defined under 49 CFR § 107.1.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180, ICAO TI, and the IMDG Code.

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4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 172.101 Column 9(b), 173.212, 173.241, 173.2, Packing Instructions 449 and 470 of the ICAO TI, and Packing Instructions P002 and P410 of the IMDG Code in that a non-DOT specification packaging is not authorized, except as specified herein, and § 176.83 and 7.2.3.2.2 of the IMDG Code in that the requirement for same hold segregation is waived.
5. BASIS: This special permit is based on the application of Applied Energy Systems, dated June 4, 2019, submitted in accordance with § 107.109 and additional information submitted December 19, 2018.
6. HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous Materials Description			
Proper Shipping Name	Hazard Class/ Division	Identi- fication Number	Packing Group
Metal powder, self-heating, n.o.s	4.2	UN3189	II
Metal catalyst, dry	4.2	UN2881	II

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packaging prescribed is gas purification equipment packaged inside a UN rated wooden crate or UN rated fiberboard box. The gas purification equipment must meet the following requirements:

(1) The authorized hazardous materials must be contained in pressure vessels fabricated of 316L stainless steel fitted with a sintered metal rod filter with a maximum micron rating of 0.1 um. The pressure vessel must be in accordance with drawing AES39407-01, AR-19-0923-01, or AR-19-0923-02 on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD).

(2) Inlet and outlet fittings must be metal gasket face seal fitting.

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(3) If shipped separately, the pressure vessels must be double poly bagged, then placed in a UN rated fiberboard box or UN rated wooden crate, appropriate for UN3189 and UN2881 materials. If vessels are part of a larger system of plumbing, valves, fittings etc. they are shipped installed and contained by the larger system components and cabinetry.

(4) The pressure vessels and/or larger systems they may be a part of must be helium leak tested to verify no leakage $>1 \times 10^{-9}$ cc/sec of helium. The vessels (and larger systems they may be a part of) are processed to include an inert gas backfill (Argon or Nitrogen) to nominally ambient pressure prior to shipping.

b. OPERATIONAL CONTROLS:

(1) The gas purification equipment authorized under this special permit must contain only one of the authorized hazardous materials when being offered for transportation.

(2) All valves must be securely closed during transportation with individual isolation valves and the hazardous materials contained inside must be protected by a blanket of argon or nitrogen at a pressure of 5 psig or less.

(3) The maximum net quantity of hazardous materials contained in any individual receptacle of the gas purification equipment (i.e., in any package) must not exceed 54 kg (119 lbs.).

(4) The quantity restriction listed in paragraph 7.b.(3) applies to all modes approved under this special permit.

(5) When transported by vessel, authorized packages containing equipment classified in Division 4.1 are not required to be segregated "away from" authorized packages containing the gas purification equipment classified in Division 4.2.

8. SPECIAL PROVISIONS:

a. A person who is not a holder of this special permit who receives a package covered by this special permit may reoffer it for transportation provided no modification or

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change is made to the package and it is reoffered for transportation in conformance with this special permit, the HMR, the ICAO TI, and the IMDG Code.

b. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

c. For purposes of transportation by cargo aircraft and cargo vessel, this special permit constitutes an exemption to the ICAO TI in accordance with 1;1.1.3. and as an exemption to the IMDG Code in accordance with Part 7, Chapter 7.9, Section 7.9.1.

d. This special permit in no way affects the need to obtain any required authorizations from other agencies of the United States Government or from the competent authorities of the States of origin, transit, over flight, and destination of the consignment, as well as the State of the air operator.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, and cargo-only aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft, or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
 - o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
 - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
 - o Registration required by § 107.601 et seq., when applicable.

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Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) – "The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 – Immediate notice of certain hazardous materials incidents, and 171.16 – Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for William Schoonover
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

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Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at

http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm.

Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: BEM/NICKS